

#	Commenter	Comment	Changed work plan to address comment	Location of change in text	STI Response
1	Todd Cardiff, Esq.; CCSC representative	Budget constraints limit the pollutants monitored, duration of monitoring, and achievement of all monitoring objectives for some pollutants. LA county must demonstrate that additional funds were pursued within one month.	No		The LA County Planning Department is pursuing additional funding to better meet monitoring objectives. If additional funds are obtained, extending the duration of monitoring for the VOCs and carbonyls is the highest priority, followed by additional funding for data analysis for health risk characterization, followed by extending the duration of metals monitoring.
2	Todd Cardiff, Esq.; CCSC representative	...the study does not appear to identify compounds such as hydrogen sulfide or methane that may be released during drilling or fracking operations. Instead it appears to focus on diesel particulate matter, which appeared to be studied and modeled during the EIR process...	Yes	Added appendix indicating prioritized rank order of all toxic air contaminants and text to Section 2.3	Methane is not classified as a Toxic Air Contaminant (TAC) by the state of California nor by the U.S. Environmental Protection Agency. Thus, it was not considered a potential target compound given the objectives of the monitoring study. Hydrogen sulfide is a TAC and was considered.
3	Catherine Cottles	If rainfall occurs while the XACT metals monitor is installed in January and February, will the precipitation adversely affect measurements? Will rainfall adversely affect the spring and early summer measurements of the PTR-TOFMS VOC monitor? If so, will additional time be added to the two-week monitoring period?	No		Rainfall will impact the study by causing metal particles to deposit out of the air. Thus, we would expect particles emitted from drilling and well-workovers to decline during rainfall events. For the PTR-TOFMS, humidity can affect the instrument performance, especially for detection of formaldehyde. The expected deployment window in the May-July time frame is climatologically a dry time of year in the area, so we do not anticipate much of a problem. Unfortunately, deployment time of both instruments is constrained by the project budget, so we will not be able to extend the duration of monitoring without additional funding.

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4	Catherine Cottles	If the drilling operations are not in full force during the short periods the XACT 625 metals monitor and the PTR-TOFMS VOC and Carbonyl monitor are installed, will the monitoring periods be changed to a time when oil field activities are at full force?	No		While the work plan does mention deploying the XACT metals monitor in the November to February window, we have flexibility in the actual deployment dates and can actually deploy the monitor at any time during the study. We intend to deploy the monitor when drill rigs are operational as based on schedules provided by PXP and LA county, assuming the information provided is accurate and timely. However, for analysis purposes, we reserve the possibility of deploying the instrument prior to anticipated drill dates to provide a comparison of drilling/non-drilling concentrations of metals. This would be helpful for meeting the emissions characterization objective and quantifying oil field contributions to risk.
5	Catherine Cottles	Since the number of oil wells will be increased each year for the next 20 years, will any oil field emissions reported in the one-year study be extrapolated in order to reflect concentrations in future years? In the next 5 years? In the next 2 years?	No		Characterizing future emissions scenarios was not mentioned in the RfP and is not part of the monitoring objectives. We do not intend to project our findings for future years.
6	Gary Gless, President CCSC	...disappointment in the Work Plans limited scope of specific monitoring durations. Given the variable nature of PXP's annual oil field new and rework drilling operations along with their day-to-day processing operations of which we have seen multiple failures over the past few years in no common sense way can we see this Work Plan meeting the [monitoring objectives]...	No		The duration of monitoring for diesel particulate matter, which has been shown as the highest priority air toxic in the Los Angeles basin (as well as from the Inglewood Oil Field) in the SCAQMD MATES II and MATES III monitoring studies, is at a 5-minute duration for an entire year at 4 monitoring sites. The 2-month and 2-week durations for the metals and VOC/carbonyl measurements reflect the relative importance of the suite of air toxics. While a longer duration study would better meet the chronic monitoring objectives, it is prohibitively expensive to have short-duration, high-sensitivity instruments deployed for multiple years at this site for all toxic air contaminants. The work plan as proposed will meet some of the monitoring objectives and provide sufficient information to recommend what additional measurements may be needed in the future to assess chronic exposures.

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7	Gary Gless, President CCSC	The constant apologetic references in STI's Draft work plan repeatedly note inadequate funding to initiate a study of proper length and imply the results will be flawed and not meet the objectives except through extrapolation of the short duration of collected data.	No		As noted in the work plan, STI could not devise a monitoring strategy that could meet all monitoring objectives for all pollutants. This does not imply the study is flawed, but does imply that some objectives will not be met for some pollutants. Additional funding could be used to design monitoring strategies to meet these objectives. However, given the available funding, we have designed a study to meet as many objectives as possible for the most important pollutants. Additionally, we have designed a study that can be used to identify areas where additional monitoring would be most beneficial in the future.
8	Gary Gless, President CCSC	In order...to meet the publics expectations it should have been designed to be a real-time study over the period of at least two years with 24/7 data collection and public access through an internet website to real time measurements similar to the Phillips 66 Rodeo Refinery monitoring. As it is now without 24/7 measurement of H2S and VOCs it is only going to be met with suspicion by residents in proximity to the fence-line of the field.	No		The measurement technologies in the Phillips 66 Rodeo Refinery monitoring (1) are less sensitive and have far higher detection limits than those proposed in this study and are therefore inadequate for characterizing chronic exposures and health risk, (2) do not target diesel, metals, or carbonyl emissions that were considerably higher priority from a toxicity standpoint for the Inglewood Oil Field, and (3) are solely focused on capturing high concentration events important for acute exposure. This approach could be applied at the Inglewood Oil Field but would not meet the chronic risk characterization objective, nor would it be sufficient to identify and characterize emissions from the Oil Field given its proximity to freeways and other emissions sources except under the (likely) infrequent failure events. Real-time measurements with detection limits and time resolution that meet our monitoring objectives are far more expensive to purchase, operate, and deploy; however, they are necessary to meet two of the four monitoring objectives and partially meet the other two monitoring objectives. A public website would require additional funds, was not requested as part of the RfP objectives, and thus was not included in the draft work plan. Additionally, someone would need to be available to answer questions regarding the displayed data.

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9	Carol Schwab, City Attorney of Culver City	...the plan seems to only address the assessment of health risk in the area of the oil field. There is no mention of oil field air toxics quantification methods, methods for determining/distinguishing other toxic air pollutant sources, or the methods by which the oil field's contribution to health risk will be attributed. The Plan must assess exposure in the community. To the extent that the Plan fails to meet objectives due to funding resources, it would be important to understand the resources necessary to meet the objectives.	Yes	Added text to Section 7.1	1. Oil field air toxic quantification methods, methods for determining/distinguishing other toxic air pollutant sources, and methods by which oil field contribution to risk are discussed in Section 7. We have modified the text to better address this concern for analysis methodology. 2. The RfP objective was, "To the extent feasible, assess the Oil Field's contribution to acute and chronic health risk in the areas surrounding the Oil Field." Assessing exposure is a very different endeavor and would require modeling methods which can be quite expensive. Our analysis methodology will attempt to characterize Oil Field concentration contributions for the targeted pollutants, which will be used to estimate an upper-bound risk to the community. Adding community monitoring would add substantial additional cost. Costs to set up a monitoring site and maintain instrument operations can be provided if funding for additional monitoring becomes available.
10	Carol Schwab, City Attorney of Culver City	Table 2.1 only presents the top 13 ranked pollutants; however concerns exist for other pollutants like reduced sulfur compounds. The lower ranked air toxic pollutants that had relatively high emissions (such as at least 10 or 100 lbs./year or more) such as hydrogen sulfide should also be presented to clarify where they rank relative to the other pollutants and also to see the assumptions, include acute emissions assumptions used to rank those higher emitting pollutants....	Yes	Added appendix and additional text to section 2.3	As mentioned in comment 2, the entire table is now included as an appendix to the work plan. According to table C-1 in the 2005-2006 EIR, hydrogen sulfide emissions are 0.27 lbs per year. Given this emission rate, it was ranked 20th in the toxicity priority order based on acute and chronic risks that were less than 0.11% of other priority pollutants like formaldehyde and nickel.

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11	Carol Schwab, City Attorney of Culver City	The 2005/2006 annual emissions from the EIR were used to determine the priority pollutants. This may be flawed because annual emissions do not address peak hourly emissions that should have been used for the analysis of acute exposures. Short-term peak emissions should have been used...to rank acute exposure pollutants of concern.	No		We are not aware of any publicly available short-term emissions activity data with which to perform a short-term analysis. Our methodology ranked all acute exposures based on total-yearly emissions, thus treating all emissions as a single event (i.e., maximum possible emission). This will overweight those pollutants with continuous emissions and underweight those that are likely to be emitted in short bursts. It may be possible to guess which pollutants are emitted in short bursts and which are emitted long-term and adjust the toxicity rankings accordingly. However, monitoring hydrogen sulfide at even a single site will require additional instrumentation and will require us to forgo monitoring of VOCs/carbonyls or metals. Given the lack of VOC/carbonyl and metal data and the ongoing hydrogen sulfide monitoring near wells, we find this option suboptimal.
12	Carol Schwab, City Attorney of Culver City	The representativeness of the 2005/2006 emissions should have been documented. It is unclear if the emissions from those years are representative of the proposed sampling period.	Yes	Added some text to section 2.1 clarifying numbers	The 2010 emissions report submitted to AQMD had no reported emissions or mentions of hydrogen sulfide (attached to the RfP Q&A provided on February 16th, 2012 by LA County). STI is not aware of any other publicly available emissions information on toxic air contaminants that can be used to assess the representativeness of the 2005/2006 year for hydrogen sulfide or other contaminants. If additional information on hydrogen sulfide emissions is available, STI can examine it to determine if it changes the prioritization of toxics to monitor.

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13	Carol Schwab, City Attorney of Culver City	...hydrogen sulfide would have been a pollutant with reduced external emissions sources that could have been used to better address [confounding external emissions sources]. To be able to attribute impacts from the oil field you need to key on a particular pollutant, but this plan doesn't seem to address what pollutant will key attribution. So, the adequacy of the consideration of this confounding issue is questionable.	No		Section 7 describes how source attribution will be performed. Specifically, "examine distributions of key toxics and tracer species binned by wind speed and wind direction to assess whether the oil field is associated with higher concentrations." and "Examine correlations using scatter plot matrices or positive matrix factorization for key toxics and tracer species to identify common emissions sources." Hydrogen sulfide could be a useful tracer species for some of the operational releases and holding tank sources, but would not be useful for drilling or workovers. Moreover, statistical techniques such as positive matrix factorization use correlations among species to identify source factors; a single tracer species is not necessary for attribution of a source.
14	Carol Schwab, City Attorney of Culver City	The data collected will be biased with more measurements at sites further from Culver City.	No		Winds are predominantly from the Southwest (onshore flow) during most of the year. Having more measurements on the downwind side of the oil field is the logical way to characterize the contributions from the oil field. Sites on the east and north will be used to characterize nighttime offshore flow conditions.
15	Carol Schwab, City Attorney of Culver City	Siting doesn't consider oil field operations...the siting must include consideration of when and where operations will take place as emissions from drill rigs and fugitive emissions from drilling muds, and other down hole sources, are a significant concern. Emissions monitoring should include siting at the downwind boundary of the field when drilling operations are occurring near the borders of the oil field in order to assess potential acute exposures during such circumstances. Consideration must also be given so that such monitoring occurs when drilling is occurring in deep zones (e.g., nodular shale), which is when previous events of significant releases of suspect hydrogen sulfide occurred.	Yes	Added text to Section 4	Detailed information on Oil Field operations, including depth of drill and location, was not available. Moreover, we can't move sites around during the study because of power, safety, and cost considerations. The only potential exception to do that is for the UWYO mobile laboratory that will be deployed. However, additional funding would be required to operate it in a mobile mode because it requires two operators during mobile operations.

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16	Carol Schwab, City Attorney of Culver City	The text is hard to follow regarding the understanding of exactly what will be sampled, how often, and how long at each of the four sampling sites. A table presenting this information would be useful	Yes	Added a table to Section 4	Added
17	Carol Schwab, City Attorney of Culver City	Provide additional information on all pollutants ranked for inclusion in the monitoring including assumptions on short-term peak emission rates to ensure that potential acute exposures have been accurately considered	Yes	Added appendix and additional text to section 2.3	Added appendix.
18	Carol Schwab, City Attorney of Culver City	Address the onsite geography of the oil field pollutants, including obtaining proposed well drilling locations during the sample period, to ensure that the sampling locations are adequate.	No		We have noted that this information is necessary and that procedures are being worked on to provide it to STI.
19	Carol Schwab, City Attorney of Culver City	Address all four of the primary and secondary project objectives in the Plan. Particularly identifying: (a) how onsite emissions will be determined during the sampling period. (b) how confounding off-oil field emissions will be determined, and (c) the methods of determining/attribution how much of the total health risk is a result of the oil field operations	Yes	Added text in Section 7.	We will not be determining "emissions" of the oil field or confounding alternate sources; we will be using monitoring data to examine concentrations of pollutants. Concentrations can be used to estimate contributions from the oil field and off-site sources. Additionally, we will only address the secondary objectives "to the extent feasible" given the available data and need to assess priority objectives.
20	Carol Schwab, City Attorney of Culver City	The SCAQMD comments should be instituted if possible...UFP sampling, collocating BC monitors, adding XRF measurements, changing methods of PTR-TOFMS verification, passive VOC sampling durations, seasonality of monitoring, including operations monitoring.	Yes and No	Most of these comments were addressed in the draft work plan dated August 16th, 2012.	Ultrafine particles are not regulated toxic air contaminants. We aren't performing passive sampling. Operations activity data are important, see response to comment 18.

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21	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	Lack of independent Verification of Emissions Data - Ultrafines comment	Yes	Added section to 2.3 on pollutants not selected	<p>1. The study is dependent on the accuracy of the emission inventory for its choice of pollutants to target for health effects. However, these same pollutants have been identified in the MATES II and III study of toxicity for the LA basin and in the National-Scale Air Toxics Assessment 2005 as drivers of risk. In order for the results to be particularly sensitive to our prioritization assumptions, we would need to see other pollutants not included as target pollutants (e.g., hydrogen sulfide, ammonia) increase in emissions by more than a factor of 10 to indicate serious health effects. Additional speciated inventory of TAC emissions from the Inglewood Oil Field, if available, could be examined to determine if other toxics are important, see comments 2 and 12. (2) Ultrafine particles are likely problems for human health, but are not regulated toxic air contaminants in California or at the Federal level. Given that there are no accepted dose-response levels, we can not perform a risk assessment for ultrafine particles. Moreover, they require a different monitoring methodology than any other TAC and would require other pollutants to be removed in order to monitor them.</p>
22	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	Compromises made in Scope of Study -	No		<p>The monitoring study was designed with a specific budget limit. The commenters argue that longer sampling deployments and more pollutants should be added, but this would obviously further increase the cost of the study, especially for pollutants not detectable using the available instruments already in the study. If more funding can be acquired, we will add additional time to our deployments and potentially add additional target pollutants.</p>

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23	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	Lack of toxicological examination - synergistic effects	Yes	Added text to Section 7	We agree with the commenters that no synergistic effects of combinations of pollutants are accounted for in available dose-response values. Available analysis funds will be used to do a simple characterization of maximum health risk from the Inglewood oil field, assuming independent effects from all TACs. The STI team will provide the monitoring data after the study for other interested parties to use; exploration of synergistic impacts of pollutants can be made later by outside experts with the funding and time to perform them.
24	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	No written agreement to give [STI] access to PXP operations data	No		We agree that this is a concern. See comment 18
25	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	Divide the study in 2	No		There are 177 toxic air pollutants regulated by the Clean Air Act amendments. While it is scientifically feasible to monitor for many of them, it is not possible under the current budget constraints. Even limiting ourselves to the 37 TACs mentioned in the 2005/2006 EIR would require the addition of at least 5 different instruments for NH3, H2S, methanol, PAHs, mercury, and phosphorous. Even a limited 1 week deployment at one site for the 37 TACs would consume the entire study budget. Prioritizing and compromise is necessary to meet the objectives partially for only a limited subset of the TACs of greatest concern.
26	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	Toxicological analysis of the data	Yes	See comment 23	
27	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	Examine correlations between emissions and the operational activities in the field	No		Concentrations can be compared to operational activities in the field, but emissions are unknown. Correlational analysis is imprecise when background concentrations are large relative to the source contribution; we expect this to be the case for many of the key targeted pollutants. We have already proposed a more statistically comprehensive analysis in Section 7 than the simple analysis proposed here.

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28	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	Supplemental recommendations of AQMD	Yes and No	See comment 20	
29	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	Seek funding from PXP to complete the second phase	No		The LA County Planning Department is independently pursuing additional funding from other agencies to better meet monitoring objectives. If additional funds are obtained, extending the duration of monitoring for the VOCs and carbonyls is the highest priority, followed by additional funding for data analysis and increasing the duration of the metals monitoring.
30	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	Black carbon monitoring should specify monitoring PM1.0 and PM2.5	Yes	Added to Section 2.2	BC is essentially all in particles less than 1.0 micron in size, thus PM2.5 and PM1.0 BC are equivalent in most cases.
31	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	Make public all written comments	No		The comments and responses will be available to the public.
32	Lark Galloway-Gilliam and Damon Nagani, CHC and NRDC	Make public all data collected	Yes	Added bullet to Section 7.2	STI will provide raw and quality controlled data with the Final Report.